ASSIGNMENT 10

Textbook Assignment: “Automatic Carrier Landing System,” chapter 9, and “Electrostatic Discharge Program,” chapter 10, pages 9-1 through 10-18.

IN ANSWERING QUESTIONS 10-1 THROUGH 10-4, SELECT FROM COLUMN B THE ITEMS DESCRIBED IN COLUMN A.

	A. DESCRIPTIONS	B. ITEMS
10-1.	Used to lock onto the landing pattern	1. ACLS system
10-2.	Used to establish the proper glide path	2. Autopilot system
10-3.	Provides warnings if automatic carrier landing mode becomes uncoupled or is degraded	3. Data link pitch commands
10-4.	Ensures that the pilot and the aircraft have the best and safest possible approach and descent to the carrier deck and touchdown	4. Data link roll commands

10-5. What system provides the interface between the data link and the flight control surfaces?

1. APC
2. AFCS
3. DDCS
4. R-DG

10-6. Data link messages and signals are received, invalid messages are screened out, and signals are sent to the autopilot system by what system?

1. APC
2. AFCS
3. DDCS
4. R-DG

10-7. What system determines the glide-path errors from the carrier’s instrument landing system radar?

1. APC
2. AFCS
3. DDCS
4. R-DG

10-8. The glide-path, pulse-coded, Ku-band information is transmitted from the carrier to the aircraft by what system?

1. LCCS
2. ACLS
3. ILS radar
4. Radar beacon

10-9. Ka-band signals are transmitted from the carrier to the aircraft to track the aircraft and compare the aircraft’s position to the desired glide path by what system?

1. LCCS
2. ACLS
3. ILS radar
4. Radar beacon

10-10. What subsystem of the AN/SPN-42 system will generate a waveoff signal?

1. Control console
2. Data link monitor
3. Digital computer
4. Tracking pulse radar set

10-11. What system transmits X-band replies to the carrier to provide precise aircraft position data?

1. LCCS
2. ACLS
3. ILS radar
4. Radar beacon

10-12. To maintain the angle-of-attack, and thus the airspeed during aircraft landing approach, what system automatically adjusts the throttles?

1. APC
2. AFCS
3. DDCS
4. R-DG

IN ANSWERING QUESTIONS 10-13 THROUGH 10-16, SELECT FROM COLUMN B THE COMPONENT DESCRIBED IN COLUMN A.

	A. DESCRIPTIONS	B. COMPONENTS
10-13.	Determines and displays backup pitch and roll attitude	1. Discrete message indicator
10-14.	Displays nine status indications from the one-way link system, the radar beacon, and autopilot	2. VGI 3. Approach indexer 4. Warning indexer panel
10-15.	Provides another angle-of-attack in the pilot's field of view	
10-16.	Provides status indications for the APC and AFCS, and whether a waveoff has been initiated	

10-17. A fully automatic approach from entry point to touchdown on the flight deck is what ACLS mode of operation?

1. Mode I
2. Mode II
3. Mode III
4. Mode IV

10-18. Manual pilot control to touchdown on the flight deck with talkdown guidance by a shipboard controller is what ACLS mode of operation?

1. Mode I
2. Mode II
3. Mode III
4. Mode IV

10-19. During Mode I landing operation, the pilot is cleared for approach by what indicator illumination on the discrete message indicator?

1. CMD CONTROL
2. ACL READY
3. AP CPLR
4. LDG CHK

10-20. During Mode I landing operation, deck motion compensation will be added to the glide-path commands at how many seconds from touchdown?

1. 1.5 sec
2. 12.5 sec
3. 15.0 sec
4. 17.5 sec

10-21. During Mode I landing operation, the landing system will freeze the pitch and bank commands at how many seconds from touchdown?

1. 2.5 sec
2. 2.0 sec
3. 1.5 Sec
4. 1.0 sec

IN ANSWERING QUESTION 10-22, REFER TO FIGURES 9-4 AND 9-5 IN THE TEXTBOOK.

10-22. During Mode I landing operation, the LCC sends a wave-off signal automatically if the aircraft exceeds the boundaries at how many seconds from touchdown?

1. From 2.5 to 17.5 sec
2. From 2.0 to 10.0 sec
3. From 1.5 to 12.5 sec
4. From 1.0 to 7.5 sec

10-23. At which of the following frequencies is atmospheric static most critical?

1. 500 kHz
2. 25 MHz
3. 50 MHZ
4. 500 MHz

10-24. Precipitation static is a severe problem in which of the following frequency bands?

1. Low only
2. Medium only
3. Low and medium
4. Ultra high

10-25. Cosmic noise is normally heard in which of the following frequency bands?

1. Low only
2. Medium only
3. Low and medium
4. Ultra high

10-26. Which of the following is a typical source of sustained switching transients?

1. Receivers
2. Transmitters
3. Synchronizers
4. Generators

10-27. Broadband random noise consists of impulses that have which of the following characteristics?

1. Regular in shape and recurrence rate
2. Irregular in shape and duration
3. Constant in voltage and duration only
4. Constant in voltage, duration, shape, and recurrence rate

10-28. A circuit or device that carries a varying electrical current is a potential source of receiver interference.

1. True
2. False

10-29. What type of dc motor, if any, is more apt to cause interference (noise) in a radio receiver?

1. Permanent magnet
2. Series wound
3. Shunt wound
4. None

10-30. The control circuit of a relay may cause more interference than the higher powered circuit being controlled by the relay.

1. True
2. False

10-31. Radio interference from operating radar is most likely caused by which of the following circuits?

1. Indicator
2. Modulator
3. Receiver
4. Synchronizer

10-32. In the tuning band of a receiver, oscillator leakage is the greatest at which of the following points?

1. Both the high and low ends
2. The low end
3. The middle range
4. The high end

10-33. If a receiver has an operating frequency of 150 MHz and an IF of 20 MHz. what is the oscillator leakage frequency?

1. 20 MHz or 150 MHz
2. 120 MHz or 150 MHz
3. 130 MHz or 170 MHz
4. 150 MHz or 170 MHz

10-34. Radio interference is caused by a cold-solder joint for which of the following reasons?

1. Its reactance varies with applied voltage
2. Its resistance varies with applied voltage
3. Its capacitance varies inversely with frequency
4. Its inductance varies with frequency

10-35. A receiver tuned to 2.4 kHz experiences extreme full-wave rectification interference. Which of the following aircraft components is the probable source?

1. Starter motor
2. Wing-flap motor
3. Single-phase invertor
4. Three-phase generator

IN ANSWERING QUESTION 10-36, REFER TO FIGURE 10-1 IN THE TEXTBOOK.

10-36. Interference is very low at the power source for which of the following reasons?

1. Source operation high frequency
2. Source operation low frequency
3. Battery high impedance
4. Battery low impedance

10-37. Which of the following actions will reduce inductive magnetic coupling in aircraft wiring?

1. Increasing the spacing between the wires
2. Decreasing the spacing between the wires
3. Decreasing the angle between the wires
4. Replacing all the existing wire with shielded wire

10-38. Which of the following antenna leads is a source of radio receiver noise in the HF range?

1. Shielded receiver
2. Unshielded receiver
3. Shielded transmitter
4. Unshielded transmitter

10-39. What elements are normally used to achieve interference reduction at the source?

1. High-frequency diodes
2. High-value components
3. Discrete components
4. Transistors

10-40. The efficiency of a perfect capacitor in bypassing radio interference increases in what proportion to the capacitance of the capacitor?

1. Linearly
2. Exponentially
3. Directly
4. Indirectly

10-41. The value of a capacitor as a bypass is lost at which of the following frequencies?

1. At the resonant frequency
2. At frequencies much lower than the resonant frequency only
3. At frequencies much higher than the resonant frequency only
4. At frequencies much higher and lower that the resonant frequency

10-42. The ideal position to place a capacitive filter to reduce radio interference is in what location?

1. Between the source of the interference and the receiver
2. Close to the source of interference
3. The receiver circuit
4. The source circuit

10-43. Feedthrough capacitors used to filter interference in an ac circuit should have a voltage rating of at least what magnitude across the capacitor?

1. Twice the applied voltage
2. Twice the peak voltage
3. Four times the applied voltage
4. Four times the peak voltage

10-44. A capacitor is NOT normally used alone as a filter in a dc switching circuit for which of the following reasons?

1. It only works in an ac circuit
2. Its reactance is too high for a dc circuit
3. Its value is too large for a dc circuit
4. Its interference exceeds that of opening an unfiltered circuit

10-45. A resistor used for proper RC filtering should be what size in respect to the load resistance?

1. One-fifth
2. One-fourth
3. One-third
4. One-half

10-46. When the inductance-capacitance filter method is used, the inductor should be connected in the dc power supply in what configuration with respect to the load?

1. In series only
2. In parallel only
3. In series or parallel, depending on the inductor rating
4. In series-parallel

10-47. An ideal low-pass filter has no insertion loss at which of the following frequencies?

1. At its cutoff frequency
2. Below its cutoff frequency only
3. Above its cutoff frequency only
4. Above or below its cutoff frequency

10-48. To eliminate radiation of harmonics produced by an overdriven output amplifier, what type of filter is used?

1. Bandpass
2. Band-reject
3. Low-pass
4. High-pass

10-49. The bandpass filter configuration of sections for an antenna is normally selected so the upper limit of the pass band approaches or exceeds the frequency of the lower limit of the pass band by what multiple factor?

1. Six
2. Two
3. Eight
4. Four

10-50. Band-reject filter elements are arranged in which of the following basic configuration?

1. W-section
2. V-section
3. P-section
4. L-section

10-51. Which of the following bonding methods is considered ideal for all frequencies?

1. Direct
2. Indirect
3. Simplex
4. Multiple

10-52. Which of the following lengths of bonding jumpers is the most effective in eliminating lightning discharge?

1. 8 in.
2. 2 in.
3. 6 in.
4. 4 in.

10-53. What is the lowest voltage that will destroy or damage an ESD-sensitive device?

1. 10 V
2. 20 V
3. 30 V
4. 35 V

10-54. The generation of static electricity on an object by rubbing is known as the

1. electrostatic charge
2. dielectric effect
3. triboelectric effect
4. prime charge

10-55. When rubbed against any of the other three, which of the following substances will assume the positive charge when separated?

1. Saran
2. Nickel
3. Steel
4. Aluminum

10-56. Under which of the following conditions is generated static electricity decreased?

1. Hot air
2. Dry air
3. Cold air
4. Humid air

10-57. Which of the following is NOT an ESD prime generator?

1. Synthetic mats
2. Vinyl
3. Common solder suckers
4. Carbon impregnated polyethylene

10-58. What is the minimum resistance for personnel ground straps?

1. 25,000 ohms
2. 150,000 ohms
3. 250,000 ohms
4. 500,000 ohms

10-59. Which of the following procedures should NOT be performed when working on ESD-sensitive devices?

1. Make continuity checks on personnel ground straps with a Simpson 260 meter or equivalent
2. Ground the work area, personnel ground straps, and equipment
3. Make periodic electrostatic measurements at all ESD-protected work areas
4. Wear cotton smocks when working with ESD-sensitive devices